THE

HORTICULTURAL REGISTER

AND

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STAPELIA IRRORATA of Masson.

Podanthes Irrorata *of Haworth.*

Having observed several varieties of the very curious family of Stapelia, in the private collections of green-house plants in the vicinity of Boston, we judge that a figure of one of the species, with some account of the general properties and method of cultivation of the tribe, would not be unacceptable to our readers.

The figure on the opposite side, will show that they are by no means devoid of beauty, and there are many still more handsome than this. The leaf, or stem,—for it seems to partake of the nature of both,—is angular, toothed; fleshy, or succulent, as it is termed, and about the thickness of the finger. One of the most singular properties of this tribe, is the unpleasant odor the flowers exhale. This variety is not so offensive as some, but in several, it so strongly resembles putrid meat, that we have frequently seen flies deposit their larva on the full blown flower, imagining that there would be food for the young maggot as soon as it appeared.

For what purposes this plant was so gifted, we neither know, nor can we now surmise, although deeply impressed with that belief which is the foundation of all science, that nothing was ever formed in vain. Their grotesque stems, which vary considerably in different species, their curious structure, the beauty of many of the flowers, and the little trouble and care required for their cultivation and propagation, have, notwithstanding this drawback, rendered them rather favorites in the green-house.

To propagate them, a piece should be cut off the stem and laid in

the hot sun for a week or ten days, until shrivelled and dry. It should then be planted in sand, and kept rather moist; in six weeks, or two months, if the sun is warm it will have taken root, and may be potted off. The most congenial soil, appears to be old brick and mortar rubbish mixed with sand, and a little earth. The pots should be well drained.

The routine culture is as follows:—They generally flower in the early spring; previous to this, they should be watered frequently; after their flowering time is over, they should be placed on the hottest shelf near the glass all the summer, and there remain unheeded and unwatered until their time comes round again. To keep them near the glass that they may have all the light possible, and dry during the hot months is the general rule; to this there are perhaps a few exceptions. Such (and they are but few) as have been discovered in shady and moist situations, may like rather more water, and many will blossom rather more freely for watering much, but the result is, that they are apt to rot from being rendered too succulent.

This treatment is, of course, founded on their manner of growth, in their native sandy deserts; where, during the excessive heat of a vertical sun, they become shrivelled almost to the size of a straw, but no sooner does the refreshing deluge of the rainy season pour down, than they swell up, and push forth their curious stems and flowers, tainting the air with their odor. It is of the family of Asclepiadeæ to which the milkweed belongs, and the silken seed with its pod, very much resembles that of the asclepias.

The Prince of Salm Dyk, in Germany, and a gentleman of the name of Christie near London, have, we believe, the finest collections known, of these and other succulent plants. The celebrated Haworth who is just dead, had also a fine collection which is now dispersed. He remodelled the tribe, and although some objections were at first made, his nomenclature has been generally adopted. There is a late German work on this plant, which we have been as yet unable to procure. We have seen about eighty varieties of stapelia, and cultivated above thirty; the flowers of most of which are in the herbarium.

Francis Masson, a naturalist, who resided ten years at the Cape of Good Hope, and devoted himself among other studies, to botany, published a splendid work in folio on the stapelia, containing fortyone large plates beautifully engraved, with a botanical description of each. From this work we make the following extract:

"The tract of land which forms the Cape of Good Hope, widens gradually as it recedes from the sea. The western coast consists of extensive sandy deserts, incapable of cultivation, and the interior part exhibits ridges of high mountains; between them are other deserts, the soil of which is a reddish earth, intermixed with rotten schistus, impregnated with salt. These deserts called Karro, are furnished with great variety of succulent plants, endowed by nature, as the camel is, with the power of retaining within them, water sufficient to enable them to survive the long periods of drought which prevail in those regions. The climate differs very much from that near the Cape, where the vegetable productions approach more to the nature of Alpine plants. This tract of country has afforded more riches for the naturalist, than perhaps any other part of the globe. When the first Europeans settled there, the whole might have been compared to a great park, furnished with a wonderful variety of animals, such as the elephant, the rhinoceros, the hippopotamus, the camelopardalis, numerous species of the genus antelope, the lion, panther, hyæna, and many other ferocious animals; but since the country has been inhabited by Europeans, most of these have been destroyed or driven away. The ornithology of the Cape is very interesting; incredible numbers of strange sorts of birds, quite unknown to the inhabitants, often migrate from the interior country, and visit the European settlement. The vegetable kingdom seems almost inexhaustible, and most of the genera at the Cape are peculiar to the southern parts of Africa. The varieties of climates and local situation afforded by the nature of the country, produce such a diversity of species, that the age of man would scarce be sufficient to complete a Flora of it, accompanied with exact figures and scientific descriptions. The Dutch, although celebrated as lovers of Natural History and Botany, had possessed the Cape near 130 years before any considerable number of plants from thence were introduced into their European gardens, a few geraniums and succulent plants excepted. Even the zoology of this interesting spot seems to have been but very little studied by them."

What a singular sensation would be created in the breast of the naturalist of the present day, were such a park of animals, a garden of such grotesque plants to be first discovered at the present day!

J. E. T.

[For the Horticultural Register.]

NEW FRUITS AND ORNAMENTAL PLANTS.

Dear Sir,—It is most cheering to the practical horticulturist, that they have such repeated causes of gratulation. Our public journals are constantly announcing some discovery or improvement in rural economy, or the reception of rare species of exotic plants. The catalogue of Pears, published in the last New England Farmer, presents a most valuable addition, to our variety of fruits, for which we are indebted to Mr Manning of Salem and Mr Kenrick of Newton.

Soon after the organization of the Massachusetts Horticultural Society, measures were taken to obtain trees or scions of the best kinds of fruits, as well as plants and seeds of ornamental trees, shrubs, flowers, and culinary vegetables, from England, France, the Netherlands, Italy, and other parts of Europe, and of Asia, South America, and the United States. In the prosecution of that labor, communications were sent to the officers of numerous horticultural societies, eminent nursery men, and gentlemen who had become distinguished for their attention to the cultivation of the useful, interesting and beautiful products of the vegetable kingdom, requesting a reciprocation of such as were to be found in their several countries, for those which were indigenous to this. The acquisitions which were thus made have been vastly more considerable, than the most sanguine could have anticipated; and the beneficial effect, is not only apparent in our market, the weekly exhibitions of fruits, flowers and vegetables, at the rooms of the Horticultural Society, but in the improved appearance of the gardens which embellish the scenery of the surrounding country.

The credit of this favorable and rapid change, in the extent and variety of useful and picturesque tillage, is not by any means exclusively to be attributed to the vigorous efforts of the Society; but much, very much of it is due to the enterprise, liberality, intelligence and zeal of private individuals, who opened a correspondence with celebrated proprietors of choice collections, amateur cultivators, or the munificent patrons of horticulture.

Among the first to enter this honorable career, and who have thus richly merited the gratitude of their countrymen, were the Hon. John Lowell, Samuel G. Perkins, Esq. Col. Thomas H. Perkins, Ebenezer Preble, and John Prince, Esqrs., and they have more recently had as emulous co-laborators, Mr Manning and Mr Kenrick,—

especially in the department of fruits. By an interchange of our native varieties, and other efficient measures, they have succeeded in presenting a list of nearly one hundred and sixty varieties of Pears which are now being cultivated, and will in a few years, be disseminated throughout the Union.

To Dr Knight, long the enlightened and indefatigable President of the London Horticultural Society, and forever illustrious, by his invaluable services to that glorious institution, and as the fortunate creator of many new varieties of pears, apples, cherries, and strawberries, are we under the greatest obligations. Although frequent have been the acknowledgements which have been expressed, by his high minded and intelligent correspondent, the Hon. John Lowell, both as President of the Agricultural Society, and as a private gentleman, and by many other citizens and societies, for the numerous rich presents which have been made by him, and the noble institution over which he presides; still, each succeeding generation will owe to him, and the London Society, as well as to those who have been the liberal dispensers of their bounties, a debt for inestimable favors, whose appreciated value will constantly increase with the enlargement of the circle they are destined to bless; for those donations are of such a peculiar character, that differing from all others, they are multiplied in value by division, and elevated in consequence by their extended distribution; and this too by a process which is infinite in its operations and effects.

The venerable Van Mons of Louvain, has devoted a long life to the cultivation of fruit trees, and has acquired a great and well merited celebrity, from having discovered one of nature's most recondite secrets, in the wonderful manner of certainly producing improved and often very superior varieties from the seed. He is now over seventy years of age, but still in the full vigor of his capacious mind, and physical powers. This worthy patriarch of horticulture is not more distinguished by his successful efforts in multiplying the number of choice fruits, than for his medical erudition, and general scientific attainments. As a professor of chemistry in the university of Belgium, as an author of several works on the natural sciences, and a splendid treatise illustrated with plates, on the Pomolography of his native country, his reputation has become co-extensive with the bounds of civilization. The ardor which he still evinces, in the prosecution of his experiments for increasing the number and variety of plants in his spacious seminaries, may be well emulated by the

youthful aspirant for distinction, in the wide expanding field of horticulture. Not many months since, I saw a letter from this beneficent, honored and good old man, in which he stated, that notwithstanding his numerous scientific and literary avocations, he was enabled at times to escape to his arboretum, and watch the labors of his assistants who were then engaged in grafting thirty thousand seedling pear-stocks.

Until the discoveries of Knight and Van Mons, the addition of a new variety of any of the kinds of fruit, which have been cultivated, since the epoch when the Roman empire was at the culminating point of its glory, was of extremely rare occurrence. To the varieties of apples, pears, peaches, plums, cherries, grapes and strawberries, which were cultivated in the most extensive gardens and orchards of Europe there had been but very few acquisitions for centuries. Now and then an accidental seedling became notorious, and was tardily distributed, while many of the most delicious and celebrated species, were year after year becoming extinct, from some cause, which has not as yet been satisfactorily explained. To supply the place of the latter, and increase, if possible, our catalogue of superior fruits, claimed the serious and devoted attention of Van Mons and Knight, and they pursued their variant modes, with that ardor and perseverance which can alone secure success, in any branch of science or art.

The hybrid process of Knight, has been crowned with honorable results, while his ingenious theory, has been rapidly extended in the floral department, and its triumphs are exhibited in the astonishing varieties of superb roses, camellias, rhododendrons, azalias and numerous other flowering shrubs and herbaceous plants, which now embellish the conservatories and rural plantations of Europe and this country.

Until the hybrid process was introduced by Knight, it was not known to have been practised, at any period or in any country, although artificial impregnation had been very limitedly resorted to, in a few instances, when the stamens and pistils were either borne on different trees, or in separate blossoms on the same plant; but this was done merely for the purpose of aiding the mysterious process of fructification, and not to obtain a new variety. I have no recollection of even this limited application of the theory, except in Tripoli, upon the date tree,—whose female blossoms are produced on trees fifty or sixty feet high, while the males grow on those, whose height

is not over twenty,—and occasionally among gardeners, on the vines of melons and cucumbers, whose stamens and pistils are in different corollas on the same plant.

Two attempts were made by the Massachusetts Horticultural Society, to obtain from Professor Van Mons, scions of some of his most valuable varieties of Pears, which utterly failed, although every possible precaution was taken, on his part, to render their transmission safe and sure. In the first instance, he sent fiftytwo kinds, which, owing to their detention between Paris and Boston, did not reach their destination, until after midsummer, and had, consequently, become a mere bundle of dried twigs. Again he was written to, and such means taken to guarantee their arrival, in good condition for engrafting, that a confidence was entertained of their reception. With a prompt and generous disposition, to comply with the request, another package of scions, containing one hundred and twenty kinds was forwarded to Havre, with a kind and interesting letter, descriptive of their character, and expressive of the anxious desire, by which he was actuated, to subserve the interests of horticulture, in the United States. The letter was received, but the scions most unfortunately, were never more heard of, after their reception at Havre.

Mr Manning and Mr Kenrick then addressed Mr Van Mons, and as private individuals, solicited renewed attempts in their favor; but it was not until after three efforts, that they at last have been enabled to publish the list which has been named, of such as have been successfully transplanted to our soil, and are actually growing in the nurseries of those gentlemen.

This perseverance has been only equalled, by that of the honored creator of those precious additions to our pomological catalogue, while his liberality and untiring disposition to confer favors, upon the citizens of this far distant country, are deserving of all praise, and of our warmest gratitude.

Mr Manning and Mr Kenrick are among those rare instances of self-elevation, and who from their private, individual, unaided and unobtrusive efforts, determined to accomplish honorable purposes, not for the sake of distinction, but to gratify a natural taste in the prosecution of inquiries, and in developing facts in that sphere of intelligence, which they have so largely contributed to illustrate. There are but few individuals who have made such unwearied and successful exertions as Mr Manning, to become acquainted with the history, character, identity and mode of cultivating all the kinds of fruit,

which will brave the rigors of our climate. There is scarcely an English or French work on fruit trees, which he has not thoroughly examined; and by collecting trees or scions from all parts of the globe, for cultivation on his own grounds, he has been enabled to understand their characteristic distinctions, and to recognise such fruits as are constantly being presented to him, as one of the able committee in that department of the Horticultural Society, with a readiness and precision which is truly astonishiug. This passion for the acquisition of all the existing varieties in every country, has a more laudable object than mere selfish gratification; for with these liberal views, which ever characterize the truly sincere and devoted disciples of intelligence, he is as much pleased to disseminate among his fellow citizens, samples of his invaluable collection, as in the fruition of his highly interesting, useful and most honorable labors.

It was most fortunate indeed for the Horticultural Society, and the whole community, that just at the moment of its creation, such an ardent, active, and successful adventurer, as Mr Manning, should have entered upon his career, in that branch of cultivation, the advancement of which, was one of the chief objects of that institution, and which is so important to the whole country. If there is any cause for regret in his character or conduct, it is in that extreme modesty, which, from a peculiar delicacy of temperament, restrains him from making public, the valuable results of his extensive experiments. His true worth is, therefore, only known to those, who have the pleasure of his acquaintance, or have been directly benefitted by his generosity. His actions are conspicuous within the circle of his immediate usefulness, but it is left for time to herald his reputation.

Mr Kenrick is extensively known, from his indefatigable exertions to elevate the character of the nurseries of New England, and as one of the pioneers in that pleasing and important branch of cultivation. Before his establishment in Newton was commenced, there was not a collection of fruit, forest and ornamental trees, shrubs and flowers, which was worthy of the age or country, northeast of the Hudson; but now he has the Winships of Brighton, and other meritorious rivals, all of whom appear determined to place such establishments, on a level with those of a similar character, which are so renowned in England, France and Holland. They cannot increase their variety and number of plants too rapidly,—for a taste and a spirit have been aroused, for the comforts and luxuries of useful and ornamental cultivation, which will more than keep pace with all their

industry, and increase the demand for their products, to an unprecedented extent.

Besides, Mr Kenrick has rendered himself conspicuous as an author. His New American Orchardist, is decidedly the best treatise on fruit trees, which has appeared in this country. It combines a description of a greater number, with more precise accounts of their history, character, and mode of culture, than any which had preceded it,—especially the second improved edition. The added chapters, on the culture of the mulberry and silk, are of especial value, at this time, when the importance of that branch of national industry has so recently become a subject of the deepest solicitude and attention, throughout all parts of the Union. The facts he adduces in support of the practicability of rearing several successive crops in the same season of vegetation, are of a truly encouraging import, to those who have commenced their plantation of mulberry trees, and the establishment of cocooneries, or manufactories, with the view of prosecuting either one or all of these departments of labor, which are destined to rival those of cotton and wool, at no very distant period.

It is well known, how recently these two great staples were brought into consequence, and now each of them constitute an amount of product, greater than were the whole exports of the United States thirty years since. Our cotton crop, for the last year, exceeded one million two hundred thousand bales, which have been sold for at least seventy dollars per bale, yielding the enormous sum of thirtyfour millions of dollars; and the wool crop for this year has been estimated at more than seventyfive millions of pounds.

Silk in its numerous manufactured forms, annually imported from Hindoostan, China and Europe, and actually consumed in the United States, has rapidly increased, and now must amount to over twelve millions of dollars. There being no part of the globe where there is one quarter part as much silk worn, in proportion to the nnmber of inhabitants, as in this country, it may readily be conceived how great will be the demand, at the next duplication of the people from the last census,—which will be but twenty years from this time. And as the ratio of consumption, of all native and foreign products, has increased in the United States, for the last thirty years, much more rapidly than that of population, it may be confidently assumed that the demand for silk in 1855 will not fall short of thirtyfive millions of dollars.

This consideration, may well constitute one of the chief elements,

in the calculations of those who have undertaken the cultivation of silk, or any other product of consumption, or exportation. When twentysix millions of inhabitants are to be fed, clothed and supported, in all the comforts, and luxuries of this rapidly flourishing republic, instead of thirteen millions, as in 1830, it may be well imagined, what must be the mighty influence, upon all kinds of labor and mechanical skill, in agriculture, manufactories, trade, commerce, and navigation, both foreign and coast wise, the fisheries, canals, railroads and steamboats. Each person has only to add twenty years to his existing age, when he will be placed in the position which has been announced, for realizing that glorious future, which cannot fail of being momentous in its results.

Mr Kenrick, therefore, has but anticipated the wants of the age, in presenting useful information to the commendable adventurers in the culture of silk, which must inevitably become one of the great staples of our internal and foreign commerce.

Before closing this communication, I cannot refrain from expressing my admiration, for the praiseworthy exertions of Mr Wilder of Dorchester, to increase our roses and camellias. Twice during the blooming season of the former, I made special visits to his garden, to behold the magnificent display which they presented. There were nearly two hundred kinds, most of which he had imported from France. It is impossible to imagine a more beautiful exhibition. The vast number, their great variety in form, color and aroma, presented a scene, which to be duly appreciated must be seen.

His collection of Camellias, amounting to over one hundred and fifty varieties, were also chiefly imported from France. When in bloom they will present a superb spectacle.

I was happy to learn that some of them were produced from the seed by Mr Foy of New York, and that one of them was superior in the size of the flower and leaf, to any which have been imported from China or reared in Europe.

The difficulty of procuring from distant regions, trees, scions, or plants of any kind can only be known by those who have made the experiment. So delicate is the physical organization, and so fugitive the vital principle, of vegetables, while so many are the conditions to be fulfilled, and so numerous the casualties to be encountered, that frequent disappointment often discourages those, who have the most favorable opportunities, or are best able to incur the expense; and it is only the enthusiastic, enterprising and determined,

who ever do, or can hope to meet with complete success. It is from this circumstance, that we do not fully appreciate the services of those who have added one new tree, shrub, flower or plant to the existing number. The history of each, which either flourishes in the sumptuous gardens of princes, or the humblest cottage grounds of the peasant,—from the most majestic forest tree, to the modest lily of the valley, constitutes a very curious and interesting portion of horticultural literature. Their introduction forms eras in the chronology of civilization, or gives immortality to the fortunate individuals who make this acquisition to the number of the useful or ornamental products of their country. Lucullus is as memorable for having brought the cherry tree from the southern shores of the Euxine, as for his victories over Mithridates. The name of Sir Walter Raleigh is perpetuated, by the benefit he bestowed on the human race, in transplanting from America a vegetable, which rivals the gift of Ceres to the Greeks, by its beneficent importance to the population of both hemispheres. Prince Potemkin in some measure atoned for his sanguinary conquests, by his encouragement of letters and the arts, his taste for horticulture, and his zeal to enrich the botanical plantations of Russia with the vegetable productions of the countries he subdued. His introduction from the Crimea, of the Black Tartarian cherry, has entwined one ever verdant leaf in the blood-stained chaplet of his military triumphs.*

The vine, the olive and the mulberry, originally transplanted from the fertile and sunny regions of Western Asia, have been the mighty sources of that wealth, prosperity and refinement, which have successively rendered the states of Italy, and the kingdoms of Spain and France, the gardens of the Eastern continent,—awakened among their inhabitants the mechanical genius of Archimedes,—stimulated the artist to revive the manufacturing skill, and rival the splendid dyes of the Tyrians, and bestowed upon their commercial fleets the sceptre of the ocean.

The introduction of the sugar cane and cotton plant, have given a direction to our national industry,—agricultural, manufacturing and commercial,—even within a generation, which fills every mind with wonder and admiration. The stupendous impulse is felt throughout

* This is decidedly the most magnificent and delicious of all the known varieties, and was introduced from the Crimea into his garden near St Petersburg, from whence it was sent to England, and first brought to this country by E. Preble.

the Union, and is producing results of the most felicitous and glorious import.

How rarely are the ultimate consequences anticipated from apparently very trivial incidents. We are too apt to seek a vast cause for grand results, when, more commonly, it is so very minute or unimportant, as to escape the observation of common minds. The fall of an apple, in the presence of a Newton, established the beautiful theory of gravitation, and enabled the astronomer to weigh the planets, as in a balance, to measure their orbits with mathematical exactitude, and to foretel the periodical return of those fiery globes, whose erratic, protracted and tremendous sweep, through the illimitable range of the firmament, had baffled the skill of all preceding philosophy, and they were, therefore, considered by astonished nations, as fearful messengers of divine vengeance, "shaking from their blazing trains, pestilence and war."

When genius and intelligence are united, the slightest circumstance, the most inobtrusive fact, the least valuable atom, becomes of gigantic importance. But a single step often indicates the route of moral grandeur,—and this may be taken by one, who at the time was not aware of the high destinies to which it might guide him, and the whole human race. A letter cut upon a prism of metal, a convex piece of glass, a drop of water converted into steam, a single seed or plant, an insect, have each achieved victories for man and for nations, in the arts of civilization, which elevate them in character and consequence, in happiness and prosperity, far beyond the most renowned condition of Egyptian, Grecian or Roman grandeur.

Very respectfully, your obedient servant,

H. A. S. Dearborn.

Roxbury, July 26, 1835.

[For the Horticultural Register.]

ON THE CULTIVATION OF ACROGENOUS OR POINT-GROWING PLANTS.

Messrs Editors — The cultivation of the more shewy and splendid of nature's vegetable productions, is a taste with which I am by no means disposed to find fault; it is but natural that those objects which are distinguished by the brilliancy of their colors, or by their magnificence in any other respect, should most attract our attention;

hence the homage paid to such plants as the tulips, the carnations and pinks, the dahlias, the camellias, rhododendrons, passion-flowers, and many others that we cannot pass over in walking through a garden, as they will not fail to give notice either to the sight or the smell of their whereabouts. Upon the old principle then of "de gustibus," I quarrel with no man's taste, but let me be allowed to claim for myself a similar freedom from censure, whilst I put forth an earnest, though feeble endeavor, to recommend to horticulturists the cultivation of a too much neglected tribe of plants. I mean such, as under the Linnæan system, were designated by the term Criptogamous, or non-flowering, but to which Professor Lindley of the London University, has lately applied the term of Acrogenous, or point-growing; and which he has formed in the manner of his great predecessor, not into a separate family, merely, but into one of the three grand divisions of the vegetable kingdom, viz: the Exogenous, Endogenous, and Acrogenous, answering pretty nearly to the older arrangement monocotyledonous and dicotyledonous.

The Acrogenous plants comprise the ferns, the mosses, the lichens, the seaweeds or algæ, but as several of these subdivisions consist of such vegetable productions as are obviously unsuitable for horticulturists, I shall not touch upon them, but confine myself wholly to the ferns, which, both from their size and structure, are sufficiently attractive to merit at least more notice than, as it appears to me, this interesting tribe have ever enjoyed.

Before I can venture, however, to recommend the ferns to the notice of horticulturists, *as horticulturists*, I must presuppose in such as are inclined to fall in with my views of the subject, a strong feeling for the beauty of *form*, and the effect of *contrast* in heightening the general appearance of a garden, for without such a feeling, I should scarcely hope to make any impression by my remarks; but I would fain believe that there are many among your readers, who, charmed as they may be by the brighter glories of the vegetable kingdom, have yet a keen relish for beauties of a less obtrusive kind, and can look upon a leaf or a frond, with an eye akin to that of its Creator, who emphatically pronounced that ALL was good. Let me endeavor, then, whilst others sing the praises of the lily of the field, and of her bright and gorgeous consorts, to call into notice some of her humbler sisters, the Aspidiums, Aspleniums, Adiantums, Osmundæ, &c.; let me whilst some pay homage to the "Patrician Trees," do justice to the "Plebeian Underwood."

Who that has ever walked out of a bright spring morning into the verdant fields, and been observant of nature, but must have noticed the irresistibly beautiful effect of the gradual unfolding of the crosier-like ferns? How splendid, how rich their forms. Did ever Christian Bishop bear the insignia of his holy office, more beautifully wrought, than those hitherto neglected models, the work of an Almighty hand? And when unfolded, who that has an eye for the beauty of form, but must have been struck with the graceful fronds of that commonest of ferns, the Osmunda cinnamomea, forming the most singularly beautiful natural vases, with their cinnamon colored spikes rising in the centre. Need I advert to the same effect a little varied and perhaps a little heightened, too, in the Aspidiums. Again, why should those no less exquisitely beautiful plants, the Adiantum capillus veneris, the Adiantum pedatum and trapezoides be so little known? Can anything exceed the delicacy and beauty of their structure? I must confess that a few visits which I paid to the conservatory of Messrs. Loddiges, of Hackney, near London, who have a pretty extensive assortment of this description of plants, made me at once sensible how much the pleasures of a garden might be increased by their introduction — non-flowering though they be.

The ferns are by no means difficult to rear; in fact they offer some advantages to horticulturists, which, independent of their beauty and variety of form, render them worthy of attention. They are fond of dank, dark corners, and places where other plants will scarcely live at all. They may be planted under trees or tall shrubs, in north aspects, in other neglected spots; they particularly affect shade and moisture, and require no sort of attention when once they have overcome the effect of transplantation. Many of them are partial to old walls and rubble, being satisfied with the most scanty diet. In my own small garden, I have for some years sought their acquaintance, and successfully cultivated all the sorts I could find in my native fields, and often has a stranger been struck by the contrast they present to all the surrounding vegetation, taking them for some rare exotics, which have caught his eye. The ferns are curious in another point of view, as they form nearly the only perfect link between the vegetable world of an ante and a post diluvian age; the fossil remains of ferns, are frequent in many places, and although the common coal bears indubitable marks of its vegetable origin, yet we have no remains of the detail, if I may so speak, of other antediluvian vegetable productions, so perfect as those of the ferns, the leaves and finest

veins of which, are to be found in the most faultless state impressed on the coal.

Let me close these short and desultory remarks by recommending to your readers more attention to this interesting tribe of the vegetable kingdom, as I feel assured that those who venture to make use of the hints thus thrown out, will acknowledge that I have opened a new source of beauty, and therefore of gratification, and if I can but succeed in stirring up some to the rich repast which attention to this neglected class of nature's productions has afforded to myself, one chief object of these lines will have been attained. J. E. T.

ON THE CULTIVATION OF THE VINE, AND WINE MAKING IN CHAMPAGNE.

HAVING received from London the work by Mr Busby, alluded to in a preceding number, we make a few extracts which we think will be amusing and interesting.

"The very eminent wine house of Messrs Ruinart and Son, of Rheims, are agents for Herries, Farquhar, and Co.'s notes. Having called upon them to cash one of these, M. Ruinart, junior, conducted me over their wine cellars, which are very extensive, and all subterranean, consisting of three under ground stores, one beneath another, all mined out of the limestone rock. The wine which has received the last attention which it requires, and is ready for expediting to the consumer, is packed in large square masses, bottle above bottle, and side by side, with no other precaution to keep them steady than a lath passing along between the necks of one layer, and the butts of the next layer above. They generally send the wine to the consumer at the age of three and four years, but after the first winter it is all put in bottle. The stock, therefore, appears immense, and indeed it is very large, for not only are different qualities required, but also different descriptions to suit the varying tastes of their consumers in England, America and Russia, to which countries Messrs Ruinart make their chief exports. A gentleman with whom I travelled, told me that he could get very good sound Champagne at Chalons for two francs a bottle, and was then going to purchase one hundred bottles at that price, but respectable wine merchants never send any to England under three francs a bottle. What is sent to England is more spirituous, and froths more strongly than what is sold for domestic

consumption. The greatest and most minute attentions are necessary in preparing Champagne. The casks in which it ferments, after running from the press, are previously sulphured to prevent the fermentation from proceeding to too great a length. It is twice clarified during the winter, and in the month of March, before the return of spring has renewed the fermentation, it is bottled off. When in this state the bottles are placed in frames, diagonally, with their heads downwards. The lees are thus collected in the neck of the bottle, but they do not consider it necessary to uncork the bottles as soon as the wine is perfectly clear, nor is it considered that there is any danger of the wine spoiling if the return of warm weather should cause a re-commencement of the fermentation, and re-mix the lees through the wine. On the contrary, they sometimes allow the lees to remain to ripen, as they term it, longer than usual. The wine, in general, remains in this state till the following winter, each bottle is then placed in a frame, and carefully uncorked. The contents of the neck of the bottle are emptied. It is filled up from another bottle of the same, and being re-corked, only now requires age to give it all the perfection it is capable of. It of course often happens, that the wine has either undergone less than the usual fermentation, or being stronger than usual, requires a greater fermentation before being put into bottles; and it consequently happens that the fermentation in the bottles is greater than they can bear, and that a large proportion of them burst during the first summer. The floors of the wine cellars are all covered with grooves, sloping to a gutter, by which the wine which has burst the bottles is conveyed to a cistern in the floor, and, as the most perfect cleanliness is observed, a part of the wine is thus sometimes saved.

"M. Ruinart, junior, is a large proprietor of vines at Aÿ, where the first qualities of frothing Champagne are made, and to this place he strongly recommended my proceeding, in order to have the most favorable view of the vineyards of Champagne, of which, he said, the cultivation was everywhere nearly similar, although conducted at different places with more or less care. He says the ordinary produce of his own vineyards is from 10 to 12 pieces, of about 46 gallons per arpent, which is about a twentyfifth part more than an English acre; that is, from 440 to 530 gallons per English acre. Having determined on visiting Aÿ, M. Ruinart gave me a letter to his manager, but he said he expected him the next day at Rheims, and would give him full instructions on seeing him.

Thursday, 22d December.—At six o'clock this morning, I joined the voiture for Epernay, where I arrived at eleven o'clock. After breakfast, I immediately proceeded to Ay, intending to return the next day, also to meet the agent of M. Ruinart, should I not be satisfied with the information I might procure in his absence Ay is a small town on the right bank of the river Marne, a little higher up than Epernay, which is situated on the left bank. On both sides of the river there is a range of chalky hills, but separated also by a very beautiful meadow about a mile in width. These hills are of no great elevation, and are more or less steep, but in no place is the soil required to be supported by terraces. The range of hills above the town of Ay, is exposed to the full south, except where the exposure is varied by recesses in the range; it consequently produces wine of the finest quality, and very superior to Epernay, which is produced on hills exposed to the north. I walked through the meadow with great difficulty and labor, the road being almost impassable in some places, owing to the depth of the mud. On arriving at Ay, I delivered my letter to Madam Hazart, the wife of M. Ruinart's manager, and expressed my doubts whether I should return the next day. She immediately called the *maître vigneron* (foreman of the vineyard) to proceed with me to the vineyard, and another to obtain the plants which the letter expressed my wish to procure. The depth of soil before reaching the chalk on the hill of Ay, is in most places, according to the report of the vigneron, ten to fifteen feet; nor is he aware of any difference being occasioned in the quality of the wine, when the chalk comes nearer the surface, which happens a little farther to the east, where they also make wines of the first quality. The soil is strongly calcareous, full of small pieces of chalk, and of stones. Near the top of the hill the soil is more argillaceous and stronger than towards the bottom; and this, in some degree, affects the quality of the wine, but not in a great degree. The great difference is caused by difference in exposure, that to the south producing uniformly the best; where the soil is the same from the top to the bottom, the middle region of the hill is still the most valuable, for it is less subject to the injuries which early frosts frequently occasion in the lower region, and generally enjoys a warmer sun, especially towards the close of the season, than the top. When the season has been extremely fine and warm, from beginning to end, the wine of the higher and lower regions of the hill equals that of the middle region. If I was struck with the closeness of the plants in Burgundy, the closeness of these was more remarkable

still. The vigneron said, that if it were possible to keep the vineyard fully furnished with plants, there would be one for each eight or nine inches in length, by six or seven in breadth. The supposition which I made to illustrate the mode of *provignage* in Burgundy, is actually realised here. Every year an addition is made to the bottom of the vineyard of a certain number of plants, and the whole of the vines are in a state of continual progression, being buried, and by that means carried twelve or fourteen inches up the hill every third year. The process is of course not regular, for in every place there are plants in each stage of the progress which they pass through. According to the number of the voids to be filled, the branches of the stock that is buried are from two to four or five. On each of these branches, when pruned in the spring, are left two buds; these buds produce branches or shoots, which bear fruit the first year. The next spring, three buds are left upon the higher, and two upon the lower of the two shoots; and the spring following, they are pruned to bear shoots corresponding to the number of voids to be filled in their neighborhood — for their turn to be buried has again arrived. By this means, also, a supply of rooted plants is obtained when they are required; but when these rooted plants are cut off, and planted out, they never bear fruit till the third year."

We also extract a few notices from his Catalogue of Vines:—

"The following three varieties are from the Hill of Hermitage, and are the varieties exclusively cultivated in the best vineyards.

"Ciras — Cavoleau, Scyras. This variety is alone used in making the best red wines of Hermitage. Cavoleau mentions a tradition which exists in the neighborhood, that this variety was originally brought from Shiraz, in Persia, by one of the hermits, who resided in the Hermitage, of which the ruins still exist on the hill where the celebrated wine of that name is produced.

"Rousette — Cavoleau, Rousanne. This variety yields by itself a dry, spirituous wine, and is not very productive.

"Marsan — white. This variety by itself yields a sweet wine; mixed with the Rousette, it produces the best white wines of Hermitage.

"The two following varieties are vines of Burgundy, from the Clos Vougeot.

"Pineau Blanc, or Chaudeny — white. Produces indifferently; is the only variety of white grape cultivated in the best vineyards.

"Pineau Noir — black. Produces rather more plentifully than

the preceding, but still indifferently. This and the above are the only varieties cultivated in the Clos Vougeot, and other vineyards of celebrity, and this is alone used in making the best red wine of Burgundy.

"The three following are vines of Champagne from the Hill of Ay.

"PINEAU DORE — black. This variety was introduced into his vineyards at Ay, by M. Ruinart, of Rheims, some years ago, and is still confined to some of the best vineyards. It is much more productive than the other varieties of the Pineau.

PINEAU VERT — black. The variety most commonly cultivated in Champagne.

PLANT BLANC, or WHITE PINEAU. This variety and the two preceding are exclusively cultivated in the vineyards, which produce the wines of Champagne of the first quality."

As this work contains the latest account of the method of cultivating the vine, and preparing the wine, in almost all the wine growing countries in Europe, we shall occasionally resume our extracts, being persuaded that wine will be extensively made in America, at no distant period; for the present we close this article, by a short quotation on the subject of the silk worm.

"After quitting Avignon, I saw no more olives, but the mulberry was most abundant on all sides; and every person with whom I have spoken on the subject, including Messrs Durand, Professor Delisle, Messrs Audibert, Negrel, and Brest, concur in representing the rearing of silk worms as a most profitable pursuit. M. Audibert said, that many persons in their neighborhood who had mulberries did not themselves rear the silk worm, but disposed of the leaves to others. The ordinary price given for the leaves of a good-sized mulberry tree, was from seven to eight francs, and if the leaves happened to be scarce, so much as ten or twelve francs have been given. [The franc is worth about nineteen cents.] They do not begin to strip the trees of their leaves till they are five or six years old."

ON THE CULTIVATION OF THE POTATO ONION.

THIS valuable variety of the onion was for a considerable time supposed to have been first brought to England during the war in Egypt against Bonaparte; but when inquiry was excited, it was found to found to have been cultivated in a nursery near London, as early as

1796, and in Devonshire for a period of twentyfive years previous to the Egyptian expedition.

Among the many services rendered to horticulture by W. Prince, Esq., late of Jamaica Plain, we believe we may enumerate the introduction of this onion, from Halifax, some years since; but it does not appear yet to be so generally cultivated as it deserves.

Its principal merits are size, the superior mildness and sweetness of its flavor — in which it very much resembles the large Portugal onion — its remaining uninjured after exposure to the severest frosts, and its ripening as early as the middle or latter end of July.

It is not raised by seed, but from bulbs of the preceding year; thus when a large bulb is planted in April, about July it will divide in four or more smaller bulbs, sometimes eight or nine: hence it is called potato onion, from increasing under ground, at the root. These small bulbs will, the succeeding year, produce large ones, which are fit to eat; but it is, of course, necessary every year to save sufficient large ones to produce small for the next crop.

On slicing a large onion, it may be seen to be composed of a numerous family of young bulbs, ready to be developed the ensuing spring; it is, therefore, the young embryo onion which is eaten, and this accounts for the superior delicacy and mildness of its flavor. It perhaps does not increase with sufficient rapidity to make it become an object of extensive cultivation, but as an article of luxury we believe it will always command a ready sale, when it becomes more known.

I have cultivated it two successive years; the first year, I manured the ground well, and dug it deep, then planted the onion deep enough to cover the whole bulb and greater part of the neck; this method was decidedly not successful; my crop was small and not numerous; this year I did not manure, but simply dug the piece, and then merely pressed the onion about one quarter of an inch deep, leaving the whole completely exposed: we had several smart frosts after this, but they remained uninjured. They had previously been the whole of the severe winter in an open wooden box in the wood-house, perfectly dry, but exposed to all the variations of temperature.

Sometimes the worms, and sometimes the frost lifted them from the original position in which they were planted; I always replaced them. As the roots pushed downwards, the earth being hard where they were pressed, the bulb was a little raised; I found this of no disadvantage — rather the contrary. The crop was ripe and gathered the

last week in July; six of the bulbs, promiscuously taken from the ground, completely divested of every particle of earth, weighed three pounds within a quarter of an ounce. I have no doubt six pickled from the largest, would weigh above three pounds.

From this, it appears to me that this onion does not require a rich soil, and that from some peculiarity in the growth of the bulb, it increases in size as the difficulty increases for the roots to penetrate into the earth. There is a passage in the communication of a valuable correspondent of our Register, (see page 87) which confirms this; and, in sowing onion seed of all sorts, the best method is to spread the seed on the surface, and then tread or roll the bed pretty hard. J. E. T.

NOTICES FROM FOREIGN PUBLICATIONS.

The following are from *The Annals of the Society of Horticulture, at Paris, for April*, 1835. We do not place quotation marks as signs of simple extracts, for they are rather condensations of such selections from information contained in this valuable work, as we think may be applicable to the state of horticulture in this country.

On the Exposure of the Roots of Trees to the Action of drying Winds and Frosts. We think it interesting to the nurseryman, the horticulturist and the farmer, in fact to all who may be concerned in the transportation or transplanting of trees, to give some account of the result of the experiments laid before the Society of Horticulture, at Paris, on the sensibility of the roots of trees.

On the 18th of December, 1833, M. Jacques took up, in the nursery of Neuilly, near Paris, two plants of fortyeight species of trees and shrubs, which were exposed on the surface of the ground to the weather until the 27th of the following February, about seventy days.

From the 18th of December to the 1st of January, the weather was so mild that several trees and shrubs in the earth vegetated; the whole month of January was also of that temperature, that several trees were in blossom. On the 1st, 2d, and 3d of February, however, it began to freeze, and on these days, the thermometer fell to 7 below freezing point; on the 11th and 17th, it fell to 4 below freezing; finally, the frosts ceased on the 25th.

On the 27th of February, the roots of the trees were immersed in water, and left to soak twentyfour hours; the branches were cut in

moderately, and those roots which appeared dry were carefully refreshed with moisture. They were then planted, and by the beginning of the summer, almost the whole had vegetated; but towards the end of July, some died off. On taking these, several of which were of the hardiest tribes, out of the ground, however, it appeared they had fallen sacrifice to the white worm, and were exhibited in that state to the Society.

As the object of this notice is rather to invite experiment on the subject in our climate, than to offer the result as one which may be depended on here, we shall give the names of those with which the experiment succeeded, as most of them are known in this country.

Amorpha fruticosa,
Ailanthus glandulosus, *tree of heaven*,
Amygdalus communis, *almond*,
Broussonetia papyrifera,
Bignonia catalpa,
Cytisus laburnum, *golden chain*,
" hirsutus,
Cerasus padus, *bird cherry*,
" mahaleb,
Euonymus Europæus,
Fraxinus excelsior, *ash*,
Hippophae rhamnoides,
Hibiscus Syriacus, *althea*,
Jasminum fruticans,
Malus communis, *apple*,
Mespilus monogyna,
Ptelea trifoliata,
Ribes alpinum, *alpine currant*,
" palmatum,
Robinia pseudo acacia, *rose flowering locust*,
Spirea opulifolia,
Sophora Japonica,
Ulmus campestris, *elm*.

On the Prince de Rohan Potato. The production or introduction of a good, mealy, free bearing potato into this country, is a thing much wished for; and as it is only by trying that we can discover those sorts best adapted to the soil, we think it right to excite attention on this subject, by giving an account of the above potato, extracted from a letter to the editor of the *Annals of the Society of Horticulture, at Paris*.

It appears that eight potatoes arrived, on the 10th of May, 1834, almost too late for a late sort like this; however, they were planted, and the following was the practice and its result.

The largest of these potatoes weighed two pounds; the others were of an ordinary size; the whole eight, however, weighed nine pounds. They were divided into thirtyeight pieces, each with an eye, and planted in holes on a line, at three feet distance between each set. The soil was of a middling quality, had been trenched for several years, about two feet deep, and recently manured.

The first earthing up (buttage) took place when the plants were six inches high; they soon began to grow with extraordinary luxuriance, far exceeding other sorts cultivated in the same manner, and which had been planted on the same soil a month earlier; and towards the end of October, they had reached the height of six feet, without blossoming. They were still growing fast when the frost put a stop to vegetation; each plant was tied to a stake with straw bands, as they increased in height, and they were earthed up a second time.

Between the 10th and 15th of November, they were dug up, and the crop weighed 350 pounds; some of the tubers weighed three pounds — the greatest part one and two pounds; there was also a proportion of small.

On cooking immediately, they seemed rather deficient in mealiness, probably owing to their not being quite ripe; on a second trial, however, after keeping some time, they were found of very superior quality, and very mealy or flowery.

It is often observed that the large potatoes are apt to be hollow in the inside; in this sort it has never been found the case — both great and small were perfectly sound at the core.

It has also been remarked that potatoes planted from small tubers do not produce large ones. M. de Montel planted four sets from a small tuber weighing only half an ounce; from this he obtained a crop of fortyeight and a quarter pounds.

There only remains for us to observe, that this potato, having been liberally distributed at Paris, particularly to M. Vilmorin, Poiteau, Soulange Boudin, and many others, we trust these gentlemen will be kind enough to transmit some to this country, for the purpose of trial.

The Lemercier Cherry. Five or six years ago, M. Lemercier found this cherry in Brabant, where it is cultivated as an espalier, not succeeding as a standard; but it will, probably, do better as a standard near Paris. It is the largest cherry ever seen here, nearly true heart shaped; some of the specimens had the stalks quadrangular near the fruit, and glandular at the other end; the fruit is rather compressed, the skin very shining, transparent, marbled red, which is also visible in the flesh, as may be seen through the transparent skin; it is netted with a greyish red on one side, and a dark brown red on the other. Before the cherry is ripe, the flesh is yellowish, at maturity this is pretty firm, but melting, is easily cut with a knife, and contains a large quantity of sugary juice, slightly acidulated, but with a peculiar

fragrance, to which we are at a loss to give a name; the stone adheres but slightly to the flesh, and although large for a cherry stone, is small in proportion to the size of the fruit.

M. L. Noisette, Paris, has grafted a considerable number of stocks with this cherry, and will have them for sale in the autumn of 1835.

A Mr Godain having stated that he was possessed of a secret in cultivating melons, by which he could communicate to this fruit, at pleasure, any particular fragrance required, a committee was appointed to examine his process; after various examinations, procrastinated and postponed several times by Mr Godain, the committee were unanimously of opinion that no such secret existed, and severely blamed this quackery.

The Abbé Berlèse, a celebrated Camellia amateur, presented to the Society three new varieties of this plant, one of his own raising, two raised by M. Tamponet. The first was named—

Camellia splendidissima, from seeds of C. variegata. Flower large, very full, of a pure milk white, nearly the form of *C. Colvillii*; the outer row of petals are large, numerous, reflexed, undulated, irregular, a little fringed; the centre petals are smaller, thickly studded, also fringed.

This seems to be a free flowerer, and readily to attain a vigorous growth. Its merit consists in its singular form, and in its snowy whiteness, which is extremely rare in seedlings.

Camellia Tamponeana. This is a large double red, with a few white stripes, and bears flowers not only at the termination of the branches, but also in the axils of the leaves in the upper branches. [This would give the plant a very rich appearance—Ed.] It flowers very freely.

Camellia Madame Adelaide. Flower large, double red, almost perfectly round, brighter color than the preceding, and rather velvety; petals round, well imbricated (laying over each other). J. E. T.

ON HEATING HORTICULTURAL AND OTHER BUILDINGS BY HOT WATER.

The way properly to approach this subject, is first to consider this scheme as compared with the former methods of heating such structures with flues, warm air and steam. The objections to the first, are

the dry heat it occasions, owing to the hot air circulating through the flues having been in immediate contact with the fire, by which it is deprived of its moisture, partially decomposed or altered, and largely charged with carbonic acid gas; the heat of this air is probably 4 a 600 degrees, and should the fire by accident be made too large, or a leak occur in the flues, the plants are inevitably injured. Warm air is seldom used, but is open to the same objection. We have proved in four months' successive experiments for chemical purposes, that atmospheric air passing over ignited coal, becomes combined with a considerable quantity of carbonic acid gas, which is unfit for vegetation, and injurious to respiration.

The method of heating by circulating steam through pipes, is free from this objection, but the inconveniences are, that accident or negligence may overload the safety-valve, and endanger the building; or what is the most serious objection, that the moment the fire gets so low as to cease driving the steam, the house becomes quickly cold, no heat being given off by the pipes.

To these objections the plan of heating by hot water inclosed in pipes is not liable; the surface by which the air of the building is warmed, scarcely ever attains 160 degrees of heat, (212 is boiling point) and it is almost impossible, if the proportions are originally properly calculated, to bring it to this point; consequently the plants can never be injured by overheat, and the atmosphere remains undeprived of its moisture, unaltered and uncontaminated. I have seen two adjoining green-houses heated, for the sake of experiment, by flue and hot water, the same species of plants being placed in each: after two months' operation, the difference in vigor of vegetation, in size and color of leaves, was beyond all conception strikingly in favor of the hot water. The thermometer was always much more steady, and the air never felt oppressive. In addition to this, if the boiler is properly constructed, so as to have a sufficient body of water heated, should the fire be let to go out, the water will take several hours to cool, and the pipes will continue to give off heat the whole time.

In fact, the superiority of this plan has been evident ever since its first application; but it has been several times in disrepute, owing to failures and accidents arising from a want of knowledge of first principles in those who have undertaken to construct the necessary apparatus, and in every one trying to start and drive a hot water system of his own, often opposed to these principles, and as often endeavoring to force them beyond their natural limits.

There are two extremes in the application of this system, the space between which has afforded extensive ground for experiments and plans. The first is the method of Perkins, who passes strong tubes of small diameter through the midst of the furnace, and thus heats the water to 4 a 600 degrees; these small tubes continue through the buildings, and give off a large quantity of heat; they take up little room, are easily concealed, and effectually warm the building. This is, therefore, very desirable, as long as the pipes remain sound; but should any accident produce a leak ever so small, the result might be a very dangerous explosion, notwithstanding the safety-valve. It is idle to say that common care will prevent this; several explosions have already taken place — and although every precaution is taken at a powder magazine, yet no one prefers to reside near it.

The other extreme is not heating the water sufficiently to keep up a rapid circulation through the pipes. This often arises from a wrong construction of the pipes and boiler, as well as of the furnace. Heat cannot be economised beyond a certain degree; if every glowing coal is placed in contact with a body which abstracts its heat, it is impossible to keep up a fire, and unless sufficient heat escapes up the chimney to rarify the air there, no draft can be created, and the fire will not burn; therefore, much depends on the proper construction and proportions of the boilers and furnaces. Again, hot water does not give off heat in proportion to its solid mass, but from its surface; therefore, the larger the surface is, compared with the solid contents of the pipes, the more rapid will be the circulation, as the heat is given off quicker, and in larger quantities; to this, however, there are limits in reason.

Attention to the proper levels is of main consequence in this system, as if any part of the pipe descends below the bottom of the boiler, the circulation is immediately arrested.

Kewley's method with a syphon inserted a few inches below the surface of the water in an open boiler, is an excellent way, where an unlimited quantity of heat is required, or where additional heat is wanted occasionally.

FESSENDEN'S PORTABLE STEAM AND HOT WATER STOVE.

T. G. Fessenden, one of the conductors of this journal, has obtained a patent from the Government of the United States, for a new application of the principles of heating apartments by hot water and steam, of which a short description will be given in this place.

The principles or distinctive advantages of this stove, consist in forming *an easily portable apparatus*, which furnishes a convenient mode of arresting and detaining nearly all the heat produced by fire in warming apartments, &c., which in common stoves is permitted to escape through the smoke-pipe and chimney into the open air. This is effected by exposing a quantity of water, inclosed in a proper vessel, to receive that heat from the fire-place which would otherwise pass off through or near the centre of the stove and smoke-pipe, distributing the heat thus obtained within the apartment to be warmed, and condensing and bringing back to the boiler, the steam which arises from the boiling of the water placed in the central part of the stove, without the apparatus of valves, syphons, &c., heretofore deemed indispensable in heating buildings by steam; or the long and cumbrous train of pipes, reservoirs, &c., commonly used where hot water has been employed as the agent in retaining and distributing heat.

Fessenden's Steam and Hot Water Stove consists of a hollow cylinder, standing perpendicularly on short legs. Within this cylinder, are a grate and ash-pit, and a fire-pot, with suitable doors, a drawer, &c., to admit air and fuel, receive ashes, &c. Directly over the fire-pot, and in part within the cylinder, is a boiler, its lower part of a cylindric shape, and its upper part diverging like a tunnel. This is suspended over the fire-pot by the projection of its sides, which rest on the upper edge of the cylinder. Above the projection, within the boiler, (according to the last improvements in the apparatus) is a groove or channel, extending horizontally round the boiler, about an eighth of an inch in depth. Above this, and easily removable, is placed the steamer, or steam-warmer, which may consist of a cylinder of tin, or other suitable metal. The lower end of this cylinder is open, and its edge rests in the groove above mentioned, and its upper end may be closed with a lid. The steam-warmer may be of any convenient dimensions, according to the size of the stove. It is generally made about thirteen inches wide, and eighteen inches high. It may be well, though not absolutely necessary, unless a great heat is required, to use a small tin pipe, for carrying off the surplus steam which may proceed from near the top of the steamer into the smoke-pipe. The lower edge of the steamer resting in the groove, and the groove being filled with water of condensed steam, confines the steam, and at the same time operates as a very delicate safety-valve, and permits a portion to escape, before it can acquire a dangerous elasticity.

This stove may answer for boiling or steaming food for man or beast; and by some alterations, (which will not here be specified, as the inventor intends to petition for a patent for improvements) may be used for distilling water from flowers, herbs, &c., or obtaining pure distilled water for the use of druggists, &c.

The boiler and its contents not only serve to arrest, detain, and eventually give out into the room much heat, which would otherwise escape through the smoke-pipe into the chimney, but the lower part, which enters into the cylinder, forces the current of heat to pass near the sides instead of the centre of the stove, by which means more heat is emitted through the sides into the room, than would be if its course was not impeded. There is likewise, in many cases, a great advantage in having hot water always at hand, which may be taken out of the stove for use when wanted; and the air of a room heated wholly or in part by hot water or steam, is much more healthy, as well as more pleasant, than that which is warmed by common iron stoves.

This stove admits of various forms and modifications, as well as different sizes and prices, too numerous to be here described. Its principal advantages consist in its giving a wholesome and agreeable warmth, its being easily set up and taken down in any location, the steam apparatus removable with nearly as much facility as the lid of a tea kettle. T. G. F.

A portable apparatus, something like the above, is coming into use in green-houses in England; but from the plans we have seen, it does not appear so simple as that here described. J. E. T.

ENGLISH PERIODICALS FOR JUNE AND JULY.

The following flowers are figured and described in the London periodicals for June and July, 1835: viz. *Botanical Register*, by John Lindley; *Sweet's British Flower Garden*, by D. Don; *Botanical Magazine*, by J. W. Hooker.

Clavija ornata, Pentandria monogynia and theophrastaceæ — a very beautiful stove plant, from the Caraccas, with numerous scarlet racemes of flowers, which had been introduced into the imperial gardens in Vienna in 1789, and described there by Jacquin; more recently, in 1829, raised from seeds, at the late Mr Colvill's nursery.

Verbena multifida, var. contracta, Didynamia angiosperma and verbenaceæ — a hardy perennial plant, growing in quantity on the Chilian Alps, varying considerably in the color of the flowers, height of the plant, and appearance of the leaves; in some specimens the color is said to be blue, in others scarlet; that figured is purplish, it runs over the ground, and is very ornamental during the summer months.

Gesnera allagophylla, Didynamia angiosperma and gesnereæ — a stove plant, inferior in color and beauty to most others of the species.

Campanula garganica, Pentandria monogynia and campanulaceæ — a beautiful and rare creeping Campanula, with very numerous blue flowers, figured from plants in Mrs Marryatt's collection at Wimbledon; but being a native of Mount Gargano, in the southern part of Italy, would probably not be hardy enough for this climate.

Psoralea macrostachya, Diadelphia decandria and leguminoseæ — a hardy perennial from California, sent home by Mr Douglas. We do not think it has much beauty, but is curious, from the hairiness of the *rachis*, (that part of the stem bearing the flowers) which remains after the flowers have fallen, in appearance like a long hairy tail.

Pentstemon staticifolius, Didynamia angiosperma and scrophularineæ — a new hardy species of this beautiful genus, also sent from California by Mr Douglas; it is nearly related to P. diffusum, from which it differs in its much larger and more lilac flowers, and in the form of its leaves. Appended to this is a valuable revision of the whole genera of Scrophularineæ, by George Bentham, Esq., the learned author of the Genera and Species Labiatarum.

Pæonia moutan lacera, double red curled Tree Pæony, Polyandria monogynia and ranunculaceæ — raised from the seed of P. moutan. This beautiful variety is strikingly different from the other moutans, in the bright rosy red of the petals, the innermost of which are very much cut and gashed, curled up, and distinctly bordered with a narrow edge of light carmine, which sets them off to great advantage, and gives the whole flower a peculiarly rich and finished appearance. The seed was sown in September, and did not germinate for eighteen months afterwards; such is generally found to be the case with the seeds of this kind of Pæony.

Russelia juncea, Rushy Russelia, Didynamia angiosperma and scrophularineæ — a pretty scarlet stove plant, from Mexico.

Eriogonum compositum, Enneandria trigynia and polygoneæ — a hardy herbaceous plant, sent by Mr Douglas from New Albion; curious, but not handsome; the genus is a native of this country.

Clianthus puniceus, Crimson Glory Pea, Diadelphia decandria and leguminoseæ — probably the most beautiful of all the late introductions to the garden; a native of New Zealand, from whence seeds were sent by the missionaries, under the name of *Kowaingutukaka*, or *Parrot's bill*, and were stated to be the produce of a large tree, but this was no doubt a mistake, as there is no reason to believe that the plant will grow more than three or four feet high.

This flower appears to us to resemble the Erythrinas, but the plant and racemes are quite different; it is said more to resemble the Scarlet Colutea (Sutherlandia frutescens); the wing, keel and banner (*ala, carina and vexillum*) are of different shades of red, from dark crimson to bright rose color; the banner has white stripes. It appears probable that it will prove hardy in the climate of England. Messrs Young, of Epsom, have advertised plants for sale, at three guineas (about fourteen dollars) each.

Colletia horrida, Bristling Colletia, Pentandria monogynia and rhamneæ — a hardy shrub, raised from seeds sent from Chili, under the name of *Retanilla;* of very little beauty.

Gilia coronopifolia, the Cantua coronopifolia of Willdenow, Pursh, Elliott, Andrews, and our No. 2 — Pentandria monogynia and polemoniaceæ. To our former notice of this plant, it is necessary to add, the different names of *Ipomopsis*, *Cantua* and *Ipomea*, have given place to *Gilia*, amongst which genus, after minute examination, this flower has been most properly classed. It was first introduced into England about the year 1720, from seeds collected by Catesby, in the upper districts of Georgia and Carolina; but as the seeds are seldom perfected in that climate, all traces of it have been lost, until very recently; we do not think that its beauty will allow it to share this fate again, while the attention to horticulture remains in its present state.

Morisia hypogea, Tetradynamia siliquosa and cruciferæ — a small, bright yellow, hardy perennial, from mountainous districts in Sardinia; the beauty of its bright green polished leaves, would render this plant valuable for rock work.

Rhododendron nudiflorum, var. Eximium, Decandria monogynia and ericaceæ — a new hybrid between R. coccinea major and R. arboreum; rather handsome; raised by Mr W. Smith, who seems to have been uncommonly successful in this branch of horticulture.

Anthyllis Webbiana, Rose-colored Kidney Vetch, Diadelphia decandria and leguminoseæ — a pretty plant for rock work, but of no other pretensions.

Phlox stolonifera, var. crassifolia, Pentandria monogynia and polemoniaceæ. This very pretty dwarf Phlox was introduced from North America, in 1825, and has been received into the garden catalogues as a species; but although we have in vain looked for characters to distinguish it from *P. stolonifera,* it is nevertheless more worthy of the attention of the florist, from the larger size and much richer hue of its blossoms; the leaves are also broader, and of a deeper green.

Symphytum Caucasicum, Pentandria monogynia and borragineæ — a highly ornamental plant, from the northern part of the promontory of Caucasus, uniting the beautiful flowers of *S. asperrimum* to a dwarf habit, thus making it very desirable for the flower border, from which the latter is almost entirely excluded, owing to its rough and tremendous growth. It has been just introduced into England, from the imperial botanic garden at St Petersburg.

Rhodanthe Manglesii, Syngenesia polygamia superflua, and compositæ — a most delightful plant, from the new English colony at Swan river; it is one of the tribe called everlasting, from its remaining perfect throughout the winter, if gathered when in bloom, and resembles the Helichrysum; the plant exhibited at the May meeting of the London Horticultural Society, measured from eighteen inches to two feet in height, and was covered with hundreds of open flowers and expanded rosy buds; it remained in blossom three months.

Primula ciliata, var. purpurea, Pentandria monogynia and primulaceæ — a hybrid seedling from *P. auricula* and *P. ciliata.* It is an extremely showy plant, from the brilliancy of its purple blossoms, which are produced in great profusion; but the tint of coloring, it is almost impossible to imitate.

Randia Boweiana, Pentandria monogynia and rubiaceæ — a handsome yellow blossomed stove plant, from Brazil.

Echinocactus Eyriesii, Icosandria monogynia and cacteæ — one of the globular cactus tribe, much resembling *C. grandiflorus,* both in its fragrance and its habit of flowering at night; but the flower is much smaller, yet very elegant in appearance. It is a native of Mexico.

Barosma crenulata, Pentandria monogynia and rutaceæ — a pretty little pink flower, resembling the diosma, and called Bucku in its native country, Africa. An infusion of it has lately obtained much celebrity in Europe, for its medicinal properties, being sudorific, diuretic, and tonic.

Primula Palinuri, Pentandria monogynia and primulaceæ — the Palinurian primrose, a native of Palinuri, near Salerno, in the Neapolitan territory; it resembles *P. veris*, the cowslip, but is more luxuriant in every part, and seems to be a most showy and desirable plant. in England it blossoms in March.

Craspedia macrocephala, Syngenesia segregata and compositæ — a beautiful large-headed flower, from Van Diemen's Land, of the same tribe as the Gnaphalium, the little white cottony heads of which are so conspicuous in our pastures; the fragrance being luscious, like that of a honeycomb.

Stypandra propinqua, Hexandria monogynia and asphodeleæ — an elegant purple flower, from New South Wales, an inmate of the greenhouse.

Leptospermum scoparium, var. grandiflorum, Icosandria monogynia and myrtaceæ — a pretty plant of the myrtle tribe, from Port Jackson, New South Wales, where it is a native of swamps.

Acacia tristis, Polygamia monœcia and leguminoseæ — a plant only differing from the very well known *A. armata*, or from the less known *A. undulata*, in a few botanical minutiæ.

Isopogon Loudoni, Tetrandia monogynia and proteaceæ. The present, a rare and handsome plant, and probably the most showy of all the genus, was one of the discoveries of Mr Baxter, whilst on his last visit to King George's Sound, in 1829; and the name he gave it, which has been adopted by Mr Brown, was in compliment to the respectable and laborious editor of the several well known elaborate works on botany and gardening.

Rhododendron Caucasicum, var. straminea, Decandria monogynia and ericeæ. We have here a fine straw-colored Rhododendron, with magnificent heads of large flowers; the figure was taken from a plant in the Glasgow botanic garden, but from where received is not mentioned; the under part of the leaves, like that of several other varieties, is of a rusty iron color.

In the above quoted works, there are several orchideous plants, which, for reasons previously mentioned, we do not notice at present; we cannot, however, help mentioning

Cypripedium insigne — Large-flowered Ladies' Slipper — a most beautiful variety, from Nepal, of a plant which ornaments the American forests; and the cultivation of which here, would amply repay the horticulturist who pretends to the least taste — and

Dendrobium densiflorum, also from Nepal, is a magnificent specimen of the orchideous tribe; but this latter probably requires considerable warmth.

From *Loudon's Gardener's Magazine*, for July, we extract the following:—

Remarks on Grafting, and more particularly on Summer Grafting. By William Thom, Esq., Surgeon, Annan.

In inserting the graft, I operate nearly in the same manner as for budding, and defer heading down the stock or branch till an after period. I make an incision of the form of an inverted capital L, thus Γ, and I carefully raise up the angular piece of bark with the handle of a budding knife, leaving the bark on the opposite side undisturbed. I then pare the lower end of the scion, to the extent of an inch, or an inch and a half, upon one side, into a thin wedge shape, and slip it gently in beneath the raised bark, taking care that the side which lies next the undisturbed bark of the stock be perfectly straight, so as to fit accurately to it. Indeed, the more effectually to insure the absolute contact of the inner bark of the scion and of the stock, I frequently take a minute paring of outer bark from off that edge of the scion which is to be applied to the unraised side of the bark of the stock. The upper end of the scion, which should contain one eye only, or, at all events, not more than two, is allowed to project beyond the wound of the stock, while the inner bark of each will be applied to each other. This latter circumstance is of great importance, as it is between these two portions of bark that the union takes place. Accordingly, it is a matter of the utmost moment, that they should be kept in apposition, which can only be done by the proper application of the ligature. This ought always to be applied by turning it in the direction which will tend to approximate the edge of the scion to the edge of the undisturbed bark of the stock. Should the ligature be turned round in the transverse direction, it may cause the scion to be shifted from its proper place; a circumstance to be most cautiously avoided, since the smallest fissure intervening between the inner bark of the stock and the inner bark of the scion, will very likely prevent union, and failure in the operation will, in all probability, result from thus mismanaging the ligature. The fabric of the ligature is not of much importance.

The Management of the Stock. When, from the pushing of the

bud, it becomes evident that the scion has adhered, the stock is partially beheaded, say to the extent of two thirds or three fourths of its branches and foliage; but not to a greater extent, lest the circulation of the sap, or vegetative process, should be impeded; but when vegetation in the scion becomes vigorous, then, and not till then, are all the branches of the stock gradually and cautiously removed: promptitude, at this period, is more dangerous than delay.

Season for Grafting. Spring is the season in which grafting has usually been performed; and I apprehend that few gardeners or nurserymen have at all adopted the more convenient practice of grafting with scions of the current year's shoots, during the summer season, as pointed out by Mr Knight, several years ago.

I am not aware of the earliest period of summer at which the operation of grafting may be performed, but I am at present conducting a series of experiments to ascertain the fact. Circumstances induce me to imagine that young wood, of many varieties of fruit trees, will be sufficiently ripe to perform the operation as early in the season as young wood can be procured, as I find that scions inserted in June have greatly the advantage of those in July.

Last year, 1834, on the 26th of June, I inserted scions of young wood of the Passans de Portugal pear, upon the branches of a well-established autumn bergamot, and on the 2d of July, I inserted a few more. The shoots of the former measure two feet four inches, whilst those of the latter are only seventeen inches. Again, the utmost limit attained by the longest shoots of grafts inserted in the spring, of the same variety, and on the same tree, was three feet; thus outstripping the June grafts by only eight inches.

Reasoning from the above experiment, no person would infer that grafting in June is preferable, in every instance, to grafting in March or April; but it is certainly consolatory to know, that work which has been neglected during the hurry of spring, or omitted from lack of opportunity of procuring grafts of the desirable varieties, may be accomplished in summer, with such a very trifling decrease in the growth of the shoot during the season.

Thus, also, from a scion of any rare or valuable variety, of only two or three eyes, procured in the spring, scions of the young wood may be taken in June or July, so that the propagator may have some young trees fit for removal or the market, in the month of November. The scions of young wood of the pear above mentioned, were produced by grafts that had been inserted as late as the 7th of April preceding.

I make no difference in my method of operating, whether the scions be of the last or of the current year's growth. In the latter case, I sometimes leave a small fragment of leaf adhering, as in budding, and at times denude the scion of all except the leaf-stalk; but have not perceived any difference in the result, which is almost invariably successful.

Annan, May 25, 1835.

SALISBURIA ADIANTIFOLIA. The male tree is now (May 1) in flower against a wall in Kew Garden; and, as a standard, in the grounds of a house adjoining the Mile End Nursery. We should be glad to know if it has flowered any where else in England this season, or at any former period. As far as has been observed, the parent male tree in the Mile End Nursery, has never flowered. The tree in the grounds adjoining has been much injured in the trunk, which may have operated upon it like ringing, and be one cause why it has flowered. Another cause may be, that it is shaded and overtopped by other trees on one side, which has consequently thrown the whole of the energies of the tree into a lateral branch; which branch is extended far beyond all the others on the open side of the tree; and it receives the reflected heat of the south front of a house, from which the branches are only distant a few yards; and on the extremity of these branches the blossoms are chiefly found. A small tree at Strasburg, which blossomed in 1828, was nearly in the same circumstances: it was overtopped by a large poplar, and the blossoms were only produced on the point of a shoot which had stretched out from under those of the poplar, and had reached the free air, where it enjoyed the direct influence of the sun. The only female salisburia in England, that we know of, is in Kew Gardens; but it has never flowered. All the female salisburias in Europe, M. Alphonse DeCandolle informs us, have been propagated from one tree, which his father discovered fifteen or eighteen years ago, in a garden at Bourdigny, in the neighborhood of Geneva. The history of this tree, if it could be procured, would be extremely interesting. M. A. DeCandolle has kindly promised to visit the garden, and examine the tree this season, and, if it flowers, to send us specimens or drawings. In the mean time, we would suggest to every possessor of a large salisburia, whether in England or on the Continent, to examine it with a view to ascertaining whether it has produced flowers this season. It is not perfectly certain that the tree is diœcious; and there may, therefore, be trees in

England that produce both male and female flowers. It is not easy to understand how a female tree got to Geneva, unless the first introduction of this tree to Europe, or any subsequent introduction, was by seeds. In the mean time, we recommend possessors of male salisburias to bud or graft the female on them. They take readily by grafting, as we proved in 1831; having put on five scions, all of which succeeded. We have now at Bayswater a handsome tree, fifteen feet high, with two leading shoots, one of which is female, and the other male. Messrs Loddiges have plants of the female salisburia for sale, which they grafted from scions sent by M. DeCandolle, two years ago. About thirty years since, they raised one plant of salisburia from seed; but they are not aware to whom they sold it.

MASSACHUSETTS HORTICULTURAL SOCIETY.

The shows for the month past have been as attractive, perhaps, as at any period since the organization of the Society. The following is a concise sketch of some of the weekly exhibitions, &c.

August 1. M. P. Wilder, Samuel Walker, William Kenrick, R. Ward, Messrs Hovey, varieties of fine flowers. Hon. John Lowell, Yucca gloriosa, Erythrina crista galli.

Fruits.—Messrs Winship, pears of several sorts. Richard Wood, Roxbury Russets, the growth of 1834. Mr Wainwright, large gooseberries. Wm Kenrick, Samuel Walker, B. A. Houghton, varieties of gooseberries. Messrs Winship, specimens of Egg-plant.

August 8. A donation of seeds of the Silk Tassel Rose, from Com. David Porter, Charge des Affaires of the United States at the Sublime Porte, directed to Gen. Dearborn, was received, and the thanks of the Society presented to the donor.

A letter was received from Mr John Lewis Russel, of Salem, Professor of Botany, &c., for the Society, announcing his acceptance of an invitation to deliver an address at the anniversary of the Society.

A letter, accompanying a donation of China flower seeds, from Mr Alexander Walsh, of Lansingburgh, was received, the seeds placed in the hands of the Committee on Flowers, and the thanks of the Society were presented to Mr Walsh.

August 15. A letter was received and read from Hon. John Lowell, concerning Dahlias, with some specimens in illustration of the letter.

Flowers were exhibited from M. P. Wilder, S. Walker, E. Weston, Jun., W. Kenrick, Messrs Hovey, B. T. Winslow, and Messrs Winship.

August 22. Pears, by C. Bowen, M. P. Wilder, W. Stearns, B. V. French, Mr Manning. Apples, by Mr Manning, E. M. Richards, B. V. French. Plums, by Mrs J. Domett, Messrs Winship, and others. Flowers, from the gentlemen who have usually contributed.

MISCELLANEOUS ARTICLES.

COLLECTED BY T. G. F.

To make kitchen Vegetables tender.—When peas, French beans, and similar productions do not boil easily, it has usually been imputed to the coolness of the season, to unseasonable rains, the nature of the soil, &c. These popular notions are erroneous. The difficulty of boiling them soft, arises from a superabundant quantity of gypsum imbibed during their growth. To correct this, throw in a small quantity of sub-carbonate of soda [common soda of the shops] into the pot along with the vegetables, the carbonic acid of which will seize on the lime in the gypsum, and free the legumes from its influence.—*Bulletin des Sciences.*

Preservation of Seeds.—If seeds are intended to be sent a great distance, or it is wished to preserve them a long time, they should be wrapped in absorbent paper, and surrounded by moist brown sugar.

Preservation of Vines in Gardens.—A correspondent assures us that the application of a small quantity of gypsum finely powdered on each hill of cucumbers, melons, &c. with a dredging box or a sieve, will preserve those vines from the striped bug, which commonly infests them. The powder is applied as soon as the insects appear on the vine, when they are wet with rain or dew, that it may adhere to them. Should this be washed off by rain, the application should be renewed till the vines are so far matured as to be out of danger.

Simple manner of keeping Apricots, Peaches, Plums, &c. fresh throughout the year.—Beat well up together equal quantities of honey and spring water; pour it into an earthen vessel, put in the fruits all freshly gathered, and cover them up quite close. When

the fruit is taken out, wash it in cold water, and it is fit for immediate use.

Superior Composition for Trees. — The following has been recommended as a "Superior composition for trees." in a letter from Hon. J. H. Guormey to W. Prince and Sons. It was first published in the *New York Farmer.*

One part, say one quart common tar. Two parts say two quarts chalk, finely pulverised and sifted. Put the tar into an iron kettle, heat it, and while hot, throw in the chalk. Care should be taken not to boil it too much, either when first made or when using it, as that will make it too hard and brittle. Should it by accident become so add tar till sufficiently soft. When to be used, heat it over either in an earthen or portable furnace, or fire made on the ground on or near the place where wanted, so as to boil or become sufficiently soft, which a little experience will show, and apply it with a small iron or wooden spatula, covering the wood entirely with a thin coat, and leaving no place for the water to get under the composition. It will remain on for years, but may be taken off whenever the bark shall have grown over the wood. It will be found on examination that there is no dead wood under it. Any one who delights in seeing fine healthy trees, after having once tried the experiment, will never abandon its use. It is particularly valuable for covering the stumps, when old trees are headed down. This composition was invented, and an account of it published, by some gentlemen either of England or Scotland, I think Sir Arthur St Clair, soon after Forsyth first published the account of his composition for healing wounds in fruit trees, which is very troublesome to make, and still more to use. It is probably known to many horticulturists, but ought to be known to all who cultivate fruit trees; and if you think the publication of these remarks will be useful, they are at your service.

GARDENER'S WORK FOR SEPTEMBER.

Carefully and industriously attend to such crops as are not yet gathered; and see that no weeds are permitted to ripen their seeds, and give you a hundred for one of these nuisances another year. In gathering a crop, or any part of a crop, of any useful product, remove

at the same time the roots, leaves, stems, or whatever else belonging to the plant of which you have taken the desired part, and which is of no farther benefit, or may appear slovenly, decaying or offensive. In cutting cabbage, lettuce, &c., pull up the stem and roots, and take them at once with the outside leaves to the compost heap, or throw them to swine. Do the same with the haulm of potatoes, leaves of turnips, carrots, celery, &c. Do not suffer the haulm of peas and beans to remain a moment after the last gathering of the crop. You may sow the first week of this month a full crop of the prickly seeded kind of radish for winter and spring use. It may be sown broad-cast, and two ounces will in that case sow a bed four feet and a half by thirty feet. If sown in drills, one ounce will sow the same space. Let no crop of fruit or herbaceous vegetables, or any part thereof, go to waste on the spot where it grew. When decay or any symptom of disease appears, let it be instantly removed to the compost yard, or placed where it may be consumed or made into manure by pigs or cattle. Earth up celery as it advances in growth, but be careful not to cover up the hearts of the plants. This work should be done in a dry day. Be careful not to bruise or injure the stalks; for if they are crushed or wounded, they will be liable to rot. Gather and preserve your ripe onions. When the necks shrink, and the leaves decay, pull and spread them out on a dry grass-plat, or some other suitable place to dry and harden, turning them over every two or three days; and in ten days or a fortnight, they will be ready to house. The scallions should not be mixed with the good onions, lest they should cause them to rot, but be hung up in some dry place, in small bunches, where they will not be too much exposed to frost. Gather all kinds of seeds, as they ripen, which you intend for planting or other uses. The dry kinds of seeds are best kept in their pods or outer covering; but the seeds of all soft fruits, as cucumbers, melons, &c., must be cleansed from the pulp and mucilage which surround them; otherwise the rotting of these parts will corrupt the seeds.

Fruit Garden and Orchard. Protect your grapes and other fruit from wasps. In order to do this, you may hang up phials of sugared or honeyed water, near the fruit you intend to defend from their attacks, in which many of the little plunderers will be caught and destroyed. The fore part of the month you may form plantations of strawberries. "The soil should be light, warm and gravelly; and the manure to be applied should be exclusively vegetable, and not

animal manure. The usual practice is to manure the ground with rotten dung, with a view to increase the size and quantity of the fruit. Rotten leaves, decayed wood, ashes in small quantity, mixed with other vegetable substances in a compost heap, will make a better manure for strawberries than any animal substance whatever. As the vines which bear this fruit require great moisture to bring the plant to its proper size, the soil and situation in which they are placed must not be too dry."—*New American Gardener.*

VINEYARD. "Grapes may be kept fresh for a long time, by the following method: before the autumn frosts have killed the leaves, let the bunch with the shoot be carefully cut off the vine; then let the lower end of the shoot be put into a bottle filled with water, which hang up with the shoot and branch in a warm room, or in a greenhouse.

"The bottle should be filled with fresh clear water every ten or twelve days, and at the same time a thin paring should be cut off the bottom of the shoot, whereby the pores will be made to imbibe the water with greater facility.

"By this method, grapes may be kept fresh and good till the middle of February. Grapes may also be kept in jars; every bunch, when well aired and perfectly dry, should be wrapped up loosely in soft white paper, laid in layers, and each layer covered with bran, which should be perfectly well dried before it is used: first lay a little of the dry bran in the bottom of the jar, then a layer of the wrapped up grapes, and so on, a layer of bran and a layer of grapes alternately, till you have filled the jar; then shake it gently and fill it to the top with bran: cover the top with paper, and over this a piece of bladder doubled, which tie firmly round, to exclude the air; then put on the top or cover of the jar, observing that it fits as close as possible. These jars should be kept in a room where they will not be exposed to damps, frosts, nor too much heat.

"In order to preserve a few of your finest bunches from the depredations of birds and insects, let some small bags, made of thin gauze or crape, be drawn over them; or, rather, let the bunches be put into the bags; the sun and air will have free access through the crape, and when wet, will dry very soon."—*M'Mahon.*